ANTECH *FIRST*ract™ Rapid Urine Culture
Frequently Asked Questions

Q: How does the *FIRST*ract™ rapid urine culture work?

A: *FIRST*ract™ utilizes 500 µL of urine, inoculated into a proprietary culture broth optimized for aerobic bacterial pathogen growth, and incubated in a controlled and fully automated setting. During the incubation process, the samples are temperature controlled and continuously mixed, minimizing sedimentation, flotation, and growth abnormalities typical of several microorganisms. Interference from erythrocytes, leukocytes, and dead cells is minimized by obtaining an initial baseline reading of turbidity. The amount of light scatter is measured and assessed from the sample turbidity of the inoculated broth. Measurements are taken every five minutes, continually monitoring for an exponential increase in turbidity that is consistent with the presence of viable bacteria replicating in the patient urine sample.

Q: How accurate is *FIRST*ract compared to traditional urine culture?

A: Initial investigations between *FIRST*ract culture and traditional urine culture show that the *FIRST*ract test has a statistical accuracy of approximately 95% (accuracy = combination of sensitivity and specificity). It is a reliable and rapid tool for the confirmation of the presence or absence of bacteria in a urine sample so veterinarians can make treatment decisions quickly and still prescribe antibiotics appropriately within the guidelines of good antibiotic stewardship.

Q: What clinical validation information is available for veterinarians?

A: Antech assessed over 500 urine samples to compare the results of *FIRST*ract rapid urine culture to traditional urine culture. The following is a summary of the method comparison results:

Sensitivity	97.26
Specificity	93.93%
Accuracy	95.22%

For more information or to access the investigation, please visit **antechdiagnostics.com/*FIRST*ract** and click the link for the white paper: ***Antech's FIRSTract™ rapid urine culture demonstrates excellent performance and high sensitivity and specificity in comparison to standard urine culture results.***
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Q: How much urine is needed? What if I don't have enough sample?

A: A minimum volume of 0.50 mL of urine is needed to run the *FIRST*ract test. If a culture swab or an insufficient volume of urine is received, a traditional microbiological culture with ID and susceptibility will still be completed and preliminary reporting should be available within 36 hours.

Q: What specimen are required? (Sample types and tubes)

A: Specimen type: Urine (Cystocentesis, clean free catch, or urinary catherization) in a sterile red top tube (RTT) or a plain white top tube is recommended.

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Q: What do I do if the patient's bladder is empty?

A: Urine samples can be challenging to obtain, especially in fractious cats or non-compliant dogs. A sterile sample obtained by cystocentesis is the sample of choice for urine culture. If the animal recently voided or cystocentesis is not possible, a sample by urinary catherization in males or a clean-catch, midstream voided sample are permissible. Please note the means of collection on the urine sample submission. Giving the patient fluids and waiting may help increase the bladder size and the potential for a successful cystocentesis. Uncooperative feline patients can be particularly challenging, especially if concerned about patient stress/fear levels. There are sterile disposable litter boxes and hydrophobic litters or beads that can be used at home to collect urine.

Q: Will a turbid sample affect the results?

A: Unless the urine sample is excessively turbid, sample turbidity should not affect the results. An initial baseline reading of turbidity is assessed on each urine sample, which will flag any excessively turbid samples that may impact result accuracy. This baseline turbidity assessment ensures that only live bacteria are detected while minimizing the impact of potentially interfering substances such as erythrocytes and leukocytes. Of the 565 urine samples assessed in this correlation study, 30 (5.3%) were determined to be excessively turbid. These *FIRST*ract™ results will be reported as having excessive turbidity and standard urine culture and sensitivity results will still be automatically reported and should be available in 36 hours.

Q: What are some reasons for turbidity in a urine sample besides bacteria?

A: There are several constituents of the urine that can cause the sample to appear turbid but the most common cellular elements are: bacteria, red blood cells, white blood cells, epithelial cells, cancerous cells, dead cells, certain crystals and debris. In general, these components are only present in urine in a small amount and a mild to moderate amount of turbidity will not affect *FIRST*ract test results. If excessive turbidity is present, *FIRST*ract results will not be available but a traditional microbiological culture with ID and susceptibility will still be completed and preliminary reporting should be available within 36 hours.

Q: What results does *FIRST*ract™ Rapid Urine Culture produce?

A: 1. **Reported result = "No Growth"** (with comment): No bacterial growth detected by *FIRST*ract™ rapid culture analysis.

2. **Reported Result = "Growth Detected"** (with comment): Bacterial growth detected by *FIRST*ract™ rapid culture analysis. Microbiological testing with ID and susceptibility in progress; preliminary report should be available within 36 hours.

3. **Turbid Sample Result =** "Culture with ID and susceptibility in progress" (with comment): *FIRST*ract™ rapid culture analysis is not available on the urine sample due to excessive turbidity. Preliminary report should be available within 36 hours.

4. **Low Volume Sample Result = "Culture with ID and susceptibility in progress"** (with comment): *FIRSTract™ rapid culture analysis is not available on the urine sample because insufficient volume was received (minimum of 0.50mL of urine is required). Preliminary report should be available within 36 hours.*

5. **Culture Swab Sample Result = "Culture with ID and susceptibility in progress"** (with comment): *FIRSTract™ rapid culture analysis is not available on the specimen because only a urine culture swab, or non-liquid specimen, such as broth tubes, or plates were received. A minimum volume of 0.50 mL of urine is required for FIRSTract™ analysis. A preliminary report should be available within 36 hours.*

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Q: Which Antech Laboratories are running *FIRST*ract?

A: *FIRST*ract is performed in all of ANTECH's 24-hour Laboratories throughout the United States and Canada.

Q: What are the test codes, list prices and turnaround times?

A: United States

Code	Description	2021* List Price	Turnaround Time
M130R	Culture, Urine Recheck	$88.95	1-4 Business Days; *Negative *FIRST*ract results reported within 24 hours.
M130	Culture, Urine	$116.32	
M130NS	Culture, Urine w/o Staph	$113.32	
ADD210	Culture, Urine Add-On	$95.82	
ADD210NS	Culture, Urine w/o Staph	$92.82	

A: Canada

Code	Description	2020* List Price	Turnaround Time
CM130R	Culture, Urine Recheck	$58.58	1-4 Business Days; *Negative *FIRST*ract results reported within 24 hours.
CM130	Culture, Urine	$76.04	
CM130NS	Culture, Urine w/o Staph	$73.04	
CADD210	Culture, Urine Add-On	$61.10	
CADD210NS	Culture, Urine w/o Staph	$58.10	

*All pricing is subject to change.

Q: Is this test discountable? What about my hospitals' special pricing?

A: ***This is new innovation in rapid urine culture will be provided at no additional charge to all urine samples submitted for culture*** because of Antech's commitment to advancing veterinary medicine, patient care and the judicious use of antibiotics as defined by the One Health initiative.

Q: Who do I call for additional information?

A: For additional information about this and any other ANTECH test, contact the ANTECH consultation service at 1-888-838-4636. ANTECH Diagnostics offers complementary consultations for all customers and employs over 150 board-certified specialists to help make sense of your most complex cases. These specialists are available Monday through Saturday to assist with interpretation of diagnostic testing and treatment choices. You can also visit antechdiagnostics.com/*FIRST*ract for more information.

Q: If I use an IDEXX SediVue in my practice and find bacteria, do I still need a urine culture?

A: Yes, urine culture remains the gold standard to identify and quantify bacteriuria and can help differentiate clinically relevant bacteria from contaminants. False positive results are possible if the SediVue detects bacteria that are not alive (especially if the patient received recent antibiotics) or was misidentified. More commonly, the SediVue will produce false negative results because low levels of bacteria may not make the SediVue threshold for detection, especially in dilute urine samples. This is the main reason why we recommend a urine culture on all urine samples where a urinary tract infection is suspected.

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Q: What if I receive discordant results: e.g. bacteria on sediment but a negative *FIRST*ract and traditional culture?

A: It is possible to observe bacteria in the urine sediment via microscopic exam but still get a result of no bacteria growth on the urine culture. Bacterial growth can be inhibited/prevented by:

- Extreme time and/or temperature between the microscopic sediment exam and the culture. This is particularly true of urine samples that are assessed microscopically in clinic and then submitted to the reference laboratory for urine culture and sensitivity testing. It is important to remember that bacteria are living cells that may be victim to temperature and pressures as well as time during transport.
- White blood cells – extreme pyuria can be an issue as these living cells may damage or destroy the bacteria in the urine sample during storage and transportation of the urine sample.
- Antibiotic treatment at the time of urine collection. The bacteria noted on the sediment exam may be present but are no longer alive and cannot be grown on culture medium.
- Extremes in urine pH.
- Anaerobic bacteria – these bacteria may not survive transport in aerobic conditions and handling.
- Fastidious bacteria – some bacteria require special media and incubation conditions to grow.

Additionally, examination of urine sediment may incorrectly identify amorphous debris or crystal fragments as bacteria. Brownian motion, the natural motion of particles in liquid, may exacerbate this problem and as a result the debris could appear alive under the microscope. While clinical pathologists recommend reading unstained urine samples, this can be challenging, and Sedi-Stain or other urine stains are often used to improve visualization. Unfortunately, these stains are subject to forming precipitates which may make interpretation more confusing and difficult than helpful. These stains can also be mishandled and become easily contaminated, spreading bacteria to all the subsequent slides that are stained.

Q: What if I receive discordant results: eg. no bacteria on sediment but a positive *FIRST*ract and traditional culture?

A: The complete urinalysis consists of three parts: the visual or physical exam, the chemical exam, and the microscopic or urine sediment exam. The microscopic examination is particularly challenging and prone to error due to the nature of the sample (excessively dilute urine), the equipment being used (veterinary clinic microscopes are often used for both "clean" and "contaminated" samples, and may be insufficiently cleaned and maintained) and the skill/experience level of the person performing the microscopic exam could vary tremendously.

Ultimately, the urine culture is the gold standard for detecting the presence or absence of bacteria in a urine sample because it is significantly more sensitive than a microscopic sediment exam.

Q: Do I still need a traditional culture?

A: *FIRST*ract is a highly accurate screening tool for bacteriuria but does not replace the need for traditional urine culture and sensitivity (C&S) testing. Urine C&S testing provides identification of the causative agent of infection, as well as the best choices for antimicrobial therapy. When used together, these tests can provide the most rapid and robust results to ensure that veterinary patients with urinary tract infections are treated in an expedited and appropriate manner.

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